

## REMARKS

In the Office Action dated July 21, 2005, claims 1-36 are pending in this application. Claims 15-19, 26-34 and 36 are withdrawn from consideration. In the Office Action, claims 1-5, 9-11, 14, 20-24 and 35 are rejected under 35 U.S.C. §102 and claims 6-8, 12-13 and 25 are rejected under 35 U.S.C. §103. Claims 3, 4, 5, 6, 14 and 35 have been amended herein. Claim 37 has been newly added. Applicants believe that the rejections have been overcome or are improper in view of the amendments and for at least the reasons set forth below.

In the Office Action, claims 1-2 and 9-11 are rejected under 35 U.S.C. §102(e) in view of U.S. Patent No. 6,855,958 ("*Sato*") and claims 12-13 are rejected under 35 U.S.C. §103(a) as allegedly unpatentable over *Sato* in view of U.S. Patent No. 5,454,716 ("*Yashiki*"). Applicants do not believe that *Sato* can be applied as prior art where the earliest effective prior art date is October 9, 2003 and where the earliest effective filing date of the claimed invention is March 14, 2003 based on the priority filing date of Japanese Application No. 2003-069602, thus predating *Sato*. A certified copy of an English language translation of JP 2003-069602 is being submitted herewith. Accordingly, Applicants respectfully request that the anticipation and obviousness rejections with respect to *Sato* be withdrawn. Applicants note that in view of a withdrawal of *Sato*, claims 1-2, 9-11 and 12-13 were not otherwise rejected and should be considered allowable.

In the Office Action, claims 3-5 and 20-24 are rejected under 35 U.S.C. §102(e) in view of U.S. Patent No. 6,495,862 ("*Okazaki*"). Applicants believe that the anticipation rejection should be withdrawn for at least the reasons below.

Of the pending claims at issue, claims 3 and 20 are the sole independent claims. Independent claim 3, as amended, relates to a light-emitting device comprising a light-emitting device main body having a light output surface, and a transparent electrode formed in a size larger than a size of the light output surface so as to cover the light output surface, wherein the light-emitting device main body is provided in the form of a chip that includes a plurality of semiconductor layers, and wherein the transparent electrode is connected directly to a whole area of the light output surface. Accordingly, Applicants' claimed invention provides a light-emitting device that has a transparent electrode larger than in size than the light output surface so as to cover the entire light output surface, which allows for accurate connection between the

transparent electrode and the light output surface even where the light-emitting device is minute in size. *See* Specification, page 3, lines 13-16. Furthermore, Applicants' claimed invention enhances light output efficiency and suppresses the possibility of various troubles such as contact failure in driving the light-emitted device. *See* Specification, page 3, lines 16-20.

Applicants respectfully submit that the cited art fails to disclose several elements of the claimed invention. For example, nowhere does the *Okazaki* reference describe a light-emitting device with a transparent electrode formed in a size larger than a size of the light output surface. Instead, *Okazaki* only appears to provide a transparent electrode and light output surface of roughly the same size. *See Okazaki*, Figure 3D. The larger size of the transparent electrode is necessary for promoting the numerous advantages described above. In addition, *Okazaki* fails to disclose a transparent electrode connected directly to a whole area of the light output surface. Instead, *Okazaki* discloses a nickel contact metal layer 13a and a p-type GaN layer 4 formed between the transparent electrode and the light output surface 3. *See Okazaki*, column 6, lines 64-67 to column 7, lines 1-8.

Independent claim 20 relates to a light-emitting apparatus comprising a light-emitting device which comprises a light-emitting device main body having a light output surface and transferred, and a contact metal formed on the light output surface; a wiring layer formed outside the region of the light output surface; and a transparent electrode so formed as to cover the contact metal and the wiring layer. Accordingly, Applicants' claimed invention provides a transparent electrode that covers both the contact metal and the wiring layer, which allows for a secure electrical connection between the contact metal and wiring layer while also lowering the positional accuracy required in forming the wiring layer because it is unnecessary to form the wiring layer in contact with the contact metal. *See* Specification, page 12, lines 19-25.

Applicants respectfully submit that the cited art fails to disclose several features of the claimed invention. For example, the *Okazaki* reference does not disclose a contact metal 13a formed on the light output surface 4. Rather, the contact metal (i.e., the p-side electrode 13a) is formed on the p-type GaN layer 7. *See, Okazaki*, Fig. 3D. Moreover, nowhere does *Okazaki* describe a transparent electrode so formed as to cover both the contact metal and the wiring layer. Instead, *Okazaki* discloses a transparent electrode that covers only the contact metal 13a. *See Okazaki*, Figure 3D. The transparent electrode 13b is formed underneath the metal layer 6,

such that the metal layer 6 covers the transparent electrode 13b, in contrast to the claimed invention.

Based on at least the differences between the cited art and the claimed invention as cited above, Applicants believe that the cited art is distinguishable from the claimed invention. Therefore, Applicants respectfully submit that the cited art fails to anticipate the claimed invention.

Accordingly, Applicants respectfully request the withdrawal the anticipation rejection of claims 3-5 and 20-24.

In the Office Action, claims 14 and 35 are rejected under 35 U.S.C. §102(e) in view of U.S. Patent No. 6,905,907 (“*Konuma*”). Applicants believe that the anticipation rejection should be withdrawn as set forth below.

Of the pending claims at issue, claims 14 and 35 are the sole independent claims. Independent claim 14, as amended, relates to an image display apparatus comprising an image display surface formed by arranging a plurality of light-emitting devices on an apparatus substrate, each of the light-emitting devices comprising a light-emitting device main body having a light output surface and transferred, and a transparent electrode formed in a size larger than a size of the light output surface so as to cover the light output surface and connected to the whole area of the light output surface through a contact layer, wherein a size of the contact layer is minute relative to the size of the light output surface.

Independent claim 35 relates to an image display apparatus comprising an image display surface formed by arranging a plurality of light-emitting apparatuses on an apparatus substrate, each of the light-emitting apparatuses comprising a plurality of light-emitting devices each of which comprises a light-emitting device main body having light output surface and transferred, and a contact metal formed on the light output surface; a wiring layer formed outside the regions of the light output surfaces; and a transparent electrode so formed as to cover the contact metals and the wiring layer, wherein a size of the contact metal is minute relative to a size of the light output surface.

These amendment are supported in the specification at, for example, page 4, lines 1-8. Accordingly, Applicants’ claimed invention provides for increased area of connection between the transparent electrode and the light-emitting device main body even as the light-emitting

device, and its corresponding light output surface, becomes more minute in size. *See* Specification, page 4, lines 8-13.

Applicants respectfully submit that the cited art fails to disclose the invention as claimed in claims 14 and 35. For example, nowhere does the *Konuma* reference discuss a light-emitting device main body with a light output surface where the transparent electrode is connected to the whole area of the light output surface through a contact layer, where a size of the contact layer is minute relative to the size of the light output surface. Instead, *Konuma* merely discloses an organic compound layer 1226 entirely covered by anode 1228. *See Konuma*, column 10, lines 38-42. Moreover, *Konuma* merely provides that a barrier layer can be provided between the organic compound layer 1226 and the anode 1228. Even assuming arguendo, that the barrier layer 318 can be considered to be a contact layer, *Konuma* fails to disclose a size of the contact layer relative to the light output surface. In fact, *Konuma* appears to indicate that the barrier layer is a film formed on the whole of the light output surface in order to mitigate sputtering damage to the second electrode (i.e., the transparent electrode) during film formation. *See, Konuma*, col. 3, lines 59-65. In that respect, *Konuma* discloses that it is necessary that the barrier layer 318 have light transmittance properties because light generated in the organic compound layer 312 (i.e., the light output surface) is emitted through the barrier layer, and as such, the barrier layer is formed as a thickness of about 20 $\mu$ m so as to be capable of transmitting light. Accordingly, there is no disclosure of a contact layer of minute size relative to the area of the light output surface. In the presently claimed invention, with the minute size of the contact layer it is possible to lower the positional accuracy in forming the light emission side wiring layers 110 and therefore to enhance operating efficiency. *See*, Specification, pg. 51, lines 24-30.

Based on at least these differences between the cited art and the claimed invention, Applicants believe that the cited art is distinguishable from the claimed invention. Therefore, Applicants respectfully submit that the cited art fails to anticipate the claimed invention.

Accordingly, Applicants request that the anticipation rejection of claims 14 and 35 be withdrawn.

In the Office Action, claims 6-8 and 25 are rejected under 35 U.S.C. §103(a) as allegedly obviousness in view of *Okazaki* and U.S. Patent No. 5,454,716 to Yashiki ("*Yashiki*"). The Patent Office primarily relies on *Okazaki*, and thus relies on *Yashiki* to remedy the deficiencies

of *Okazaki*. Applicants believe that the obviousness rejection should be withdrawn for at least the reasons set forth below.

At the outset, the primary *Okazaki* reference fails to disclose, as previously discussed regarding independent claim 3, a light-emitting device with a transparent electrode formed in a size larger than a size of the light output surface and that is connected directly to a whole area of the light output surface. Instead, *Okazaki* discusses a transparent electrode and light output surface of very similar sizes as well as a contact metal between the transparent electrode and the light output surface. See *Okazaki*, Figure 3D, column 6, lines 64-67 to column 7, lines 1-8. Applicants' claimed features are essential in that they provide for an increased area of connection between the transparent electrode and the light-emitting device main body even as the light-emitting device, and its corresponding light output surface, becomes more minute in size. See Specification, page 4, lines 8-13. Furthermore, these features allow for accurate connection between light output surface and transparent electrode while also suppressing the possibility of various troubles such as contact failure in driving the light-emitting device. See Specification, page 3, lines 14-20.

With regard to claims 6-8, Applicants do not believe that *Yashiki* remedies the deficiencies of *Okazaki*. The Patent Office primarily relies on *Yashiki* for the conductive particle element in dependent claim 6. However, *Yashiki* fails to disclose or suggest a transparent electrode formed in a size larger than a size of the light output surface and that is connected directly to a whole area of the light output surface, elements required by independent claim 3 for which claim 6 depends.

Regarding independent claim 20, for which claim 25 depends, the primary *Okazaki* reference fails to disclose a transparent electrode so formed as to cover both the contact metal and the wiring layer, as previously discussed. Instead, *Okazaki* discloses a transparent electrode 13b that covers only the contact metal 13a and a wiring layer 6 that is formed on the transparent electrode. See *Okazaki*, Figure 3D. Applicants' claimed features are essential to securely achieving electrical connection between the contact metal and the wiring layer. See Specification, page 10, lines 10-11. Additionally, because the transparent electrode makes it unnecessary to form the wiring layer in contact with the contact metal, it is also possible to lower

the positioning accuracy in forming the wiring layer and to enhance operating efficiency. *See* Specification, page 10, lines 11-13.

With regard to claim 25, Applicants do not believe that the *Yashiki* reference can remedy the deficiencies of *Okazaki*. The Patent Office primarily relies on *Yashiki* for the diffusion preventative layer in dependent claim 25. However, *Yashiki* fails to disclose or suggest a transparent electrode so formed as to cover both the contact metal and the wiring layer, an element required by independent claim 20 for which claim 25 depends.

Therefore, *Okazaki* and *Yashiki*, even if properly combinable, fail to disclose each of the elements of the claimed invention. Based on at least these reasons, Applicants believe that the cited art fails to render obvious the claimed invention.

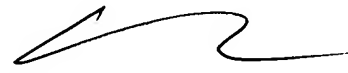
Accordingly, Applicants respectfully request that the obviousness rejection of claims 6-8 and 25 be withdrawn.

For the foregoing reasons, Applicants respectfully submit that the present application is in condition for allowance and earnestly solicit reconsideration of same.

Respectfully submitted,

BELL, BOYD & LLOYD LLC

BY



Thomas C. Basso  
Reg. No. 46,541  
Cust. No. 29175

Dated: October 12, 2005